

1. A crosstalk and EME minimizing trace suspension assembly structure comprising:

multiple write lines which are crossed between said preamplifier connection point and said slider contact pads;

multiple read lines driven by pre-amplifier circuits;

slider contact pads, which connect said write lines to said trace suspension assembly;

slider contact pads, which connect said read lines to said trace suspension assembly; and

multiple write line driven by preamplifier circuits.

2. The crosstalk and EME minimizing structure of claim 1 wherein said crossing point of said write lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.

3. The crosstalk and EME minimizing structure of claim 1 wherein said crossing point of said write line is made by the addition of a second metallization layer onto said trace suspension assembly.

4. The crosstalk and EME minimizing structure of claim 1 wherein multiple crossing points of said write lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.
5. The crosstalk and EME minimizing structure of claim 1 wherein said write lines have parasitic capacitance between the write lines and the read lines.
6. The crosstalk and EME minimizing structure of claim 5 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.
7. A crosstalk and EME minimizing trace suspension assembly structure comprising:
 - multiple read lines which are crossed between said preamplifier connection point and said slider contact pads;
 - multiple read lines driven by pre-amplifier circuits;
 - slider contact pads, which connect said write lines to said trace suspension assembly;
 - slider contact pads, which connect said read lines to said trace suspension assembly; and
 - multiple write line driven by preamplifier circuits.

8. The crosstalk and EME minimizing structure of claim 7 wherein said crossing point of said read lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.
9. The crosstalk and EME minimizing structure of claim 7 wherein said crossing point of said read line is made by the addition of a second metallization layer onto said trace suspension assembly.
10. The crosstalk and EME minimizing structure of claim 7 wherein multiple crossing points of said read lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.
11. The crosstalk and EME minimizing structure of claim 7 wherein said read lines have parasitic capacitance between the read lines and the write lines.
12. The crosstalk and EME minimizing structure of claim 11 wherein said parasitic capacitances between the read lines and write lines are used to cancel crosstalk noise between said read lines and said write lines.
13. A crosstalk and EME minimizing trace suspension assembly structure comprising:

multiple write lines which are crossed between said preamplifier connection point and said slider contact pads;

multiple read lines which are crossed between said preamplifier connection point and said slider contact pads;

multiple read lines driven by pre-amplifier circuits;

slider contact pads, which connect said write lines to said trace suspension assembly;

slider contact pads, which connect said read lines to said trace suspension assembly; and

multiple write line driven by preamplifier circuits.

14. The crosstalk and EME minimizing structure of claim 13 wherein said crossing point of said write and read lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.

15. The crosstalk and EME minimizing structure of claim 13 wherein said crossing point of said write and read lines is made by the addition of a second metallization layer onto said trace suspension assembly.

16. The crosstalk and EME minimizing structure of claim 13 wherein multiple crossing points of said write and read lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.
17. The crosstalk and EME minimizing structure of claim 13 wherein said write and read lines have parasitic capacitance between the write lines and the read lines.
18. The crosstalk and EME minimizing structure of claim 17 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.
19. A method of minimizing crosstalk and EME in a trace suspension assembly structure comprising the steps of:
- providing multiple write lines which are crossed between said preamplifier connection point and said slider contact pads;
 - providing multiple read lines driven by pre-amplifier circuits;
 - providing slider contact pads, which connect said write lines to said trace suspension assembly;
 - providing slider contact pads, which connect said read lines to said trace suspension assembly; and
 - providing multiple write line driven by preamplifier circuits.

20. The method of minimizing crosstalk and EME of claim 19 wherein said crossing point of said write lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.
21. The method of minimizing crosstalk and EME of claim 19 wherein said crossing point of said write line is made by the addition of a second metallization layer onto said trace suspension assembly.
22. The method of minimizing crosstalk and EME of claim 19 wherein multiple crossing points of said write lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.
23. The method of minimizing crosstalk and EME of claim 19 wherein said write lines have parasitic capacitance between the write lines and the read lines.
24. The method of minimizing crosstalk EME of claim 23 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.

25. A method of minimizing crosstalk and EME in a trace suspension assembly structure comprising the steps of:

providing multiple read lines which are crossed between said preamplifier connection point and said slider contact pads;

providing multiple read lines driven by pre-amplifier circuits;

providing slider contact pads, which connect said write lines to said trace suspension assembly;

providing slider contact pads, which connect said read lines to said trace suspension assembly; and

providing multiple write line driven by preamplifier circuits.

26. The method of minimizing crosstalk and EME of claim 25 wherein said crossing point of said read lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.

27. The method of minimizing crosstalk EME of claim 25 wherein said crossing point of said read line is made by the addition of a second metallization layer onto said trace suspension assembly.

28. The method of minimizing crosstalk and EME of claim 25 wherein multiple crossing points of said read lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.

29. The method of minimizing crosstalk and EME of claim 25 wherein said read lines have parasitic capacitance between the read lines and the write lines.

30. The method of minimizing crosstalk and EME of claim 29 wherein said parasitic capacitances between the read lines and write lines are used to cancel crosstalk noise between said read lines and said write lines.

31. A method of minimizing crosstalk and EME in a trace suspension assembly structure comprising the steps of:

- providing multiple write lines which are crossed between said preamplifier connection point and said slider contact pads;

- providing multiple read lines which are crossed between said preamplifier connection point and said slider contact pads;

- providing multiple read lines driven by pre-amplifier circuits;

- providing slider contact pads, which connect said write lines to said trace suspension assembly;

providing slider contact pads, which connect said read lines to said trace suspension assembly; and

providing multiple write line driven by preamplifier circuits.

32. The method of minimizing crosstalk and EME of claim 31 wherein said crossing point of said write and read lines between said preamplifier connection point and said slider contact pads is placed halfway between said preamplifier connection point and said slider contact pads.

33. The method of minimizing crosstalk and EME of claim 31 wherein said crossing point of said write and read lines is made by the addition of a second metallization layer onto said trace suspension assembly.

34. The method of minimizing crosstalk and EME of claim 31 wherein multiple crossing points of said write and read lines are used to further cancel out time-delayed (transmission line effects) parts of said crosstalk and EME.

35. The method of minimizing crosstalk and EME of claim 31 wherein said write and read lines have parasitic capacitance between the write lines and the read lines.

HT03-005

36. The method of minimizing crosstalk and EME of claim 31 wherein said parasitic capacitances between the write lines and read lines are used to cancel crosstalk noise between said write lines and said read lines.